# The changing Data Landscape

"Data at the heart of everything"

# Dealing with Data Conference 2017

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# Data Driven Innovation

In an increasing number of cases data shifts from a mere output of research to the very core reason the research or innovation can occur in the first place.

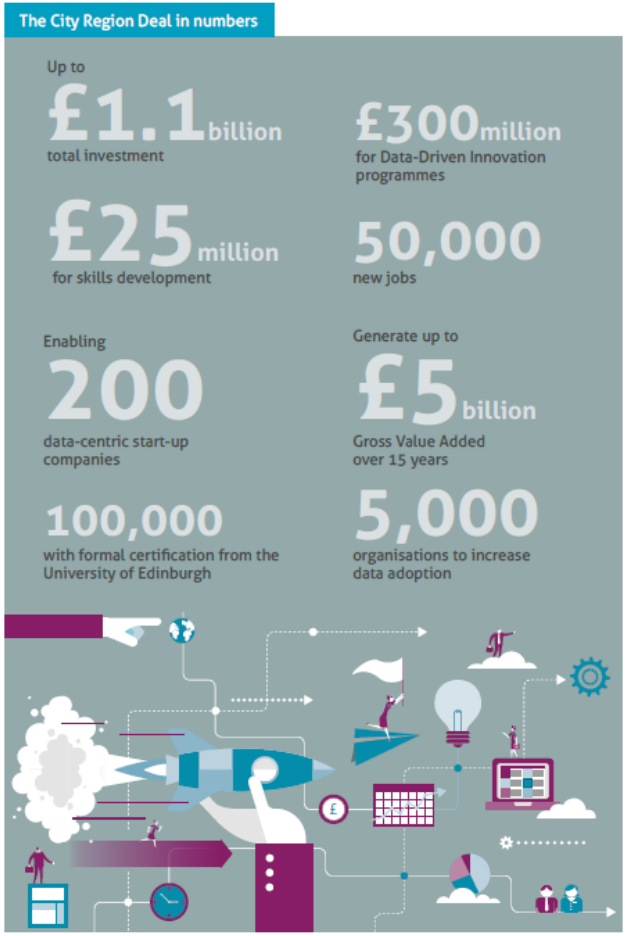
# Data Driven Innovation

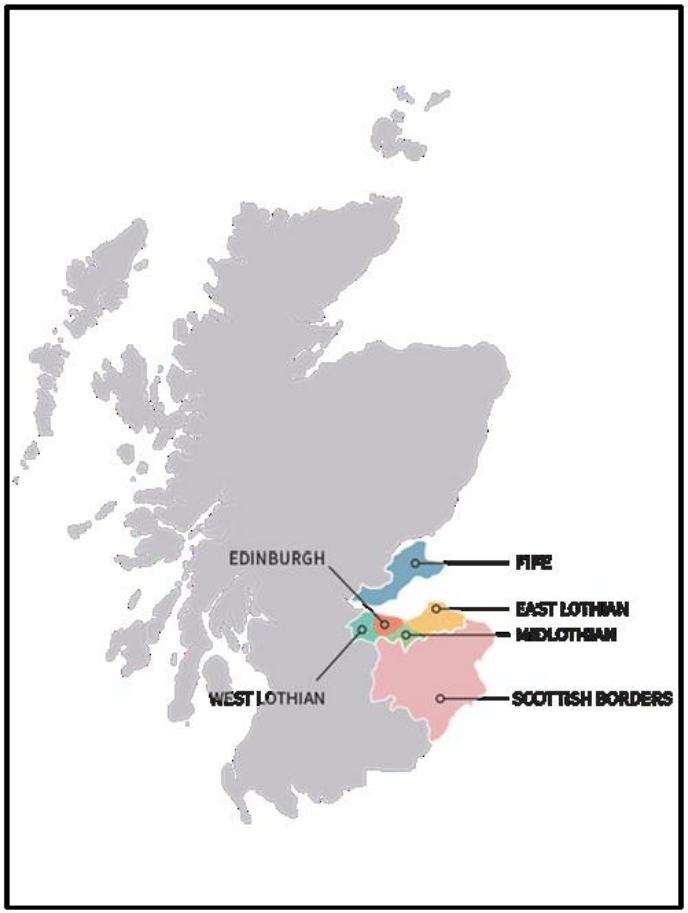
- The generation, collection, analysis and monetisation of huge volumes of data now underpins the Digital Economy.
- Data Driven Innovation sits at the heart of CityDeal.
- One of the biggest growth areas of the economy.

# Thoughtful question

Just like your research papers are consumed world wide, will your Research Data become part of the Data Driven economy?

# CityDeal, DDI and Digital Transformation



"Our aim is to help establish the region as the Data Capital of Europe, drawing in inward investment, fuelling entrepreneurship, and delivering inclusive economic growth."


Framework for Data Driven Innovation

# IT vendors recognize the shift

Supercomputing vendors are increasingly presenting their new products as “Storage, wrapped in compute”.

# The Challenges

- Balancing openness with privacy
- Informed consent & GDPR
- Is your research data Findable, Accessible, Interoperable, and Reusable (FAIR)?
- Is open data changing the way you do research?
- How have research data tools impacted on your productivity? What tools do you need to work with your research data effectively?

# FAIR

## FAIR Principles

Make your data:

- **F**indable
- **A**ccessible
- **I**nteroperable
- **R**eusable

**Findable**
- Descriptive metadata
- Persistent Identifiers

**Accessible**
- Determining what to share
- Participant consent and risk management
- Access status

**Interoperable**
- XML standards
- Data Documentation Initiative
- CDISC

**Reusable**
- Rights and licence models
- Permitted and non-permitted use

http://datafairport.org/

Data FAIRport

Find, Access, Interoperate & Re-use Data

# European Open Science Cloud Declaration

**Data culture:** European science must be grounded in a common culture of data stewardship, so that research data is recognised as a significant output of research and is appropriately curated throughout and after the period conducting the research.

**Open access by-default:** All researchers in Europe must enjoy access to an open-by-default, efficient and cross-disciplinary research data environment supported by FAIR data principles. Open access must be the default setting for all results of publicly funded research in Europe, allowing for proportionate limitations only in duly justified cases of personal data protection, confidentiality, IPR concerns, national security or similar

**Skills:**The necessary skills and education in research data management, data stewardship and data science should be provided throughout the EU as part of higher education, the training
system and on-the-job best practice in the industry..

# European Open Science Cloud Declaration

**Data stewardship:** Researchers need the support of adequately trained data stewards. The European Commission and Member States should invest in the education of data stewards via career programmes delivered by universities, research institutions and other trans-European agents.

**Rewards and incentives:** Rewarding research data sharing is essential. Researchers who make research data open and FAIR for reuse and/or reuse and reproduce data should be rewarded, both 2 in their career assessment and in the evaluation of projects (initial funding, review of performance and impact). This should go hand in hand with other career policies in universities and research institutions .

**Data Management Plans:** A key element of good data management is a Data Management Plan (DMP); the use of DMPs should become obligatory in all research projects generating or collecting publicly funded research data.

# Links

- FAIR principals
  - https://dash.harvard.edu/handle/1/26860037
- European Open Science Cloud Declaration
  - https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud